Shielding Median Obstacles

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This section provides guidelines for shielding obstacles in the median, such as bridge piers and sign-truss footings.

Warrants

Most median obstacles should be shielded if located within the clear zone of either side of a divided highway (see Section 1C-2 for more information on clear zones). Normally, median obstacles are shielded on both sides with wire rope safety barrier (see RE-56). In wide medians, the obstacle may be within the clear zone for one side of the facility but a significant distance outside the clear zone for the other side. In these cases, the obstacle may be shielded in one direction only.

On freeways with standard median widths (64 feet or 20.8 meters) all median obstacles should be shielded. On freeways and expressways with medians wider than standard width, median obstacles are not shielded if located outside of the clear zone for both directions. The maximum value listed in Table 1 of Section 1C-2 for the given design speed and ADT is to be used when determining the clear zone. Even if it is determined the obstacle is outside of the clear zone, grading should still be done as detailed on Standard Road Plan RL-12, in case the decision is made to install guardrail at a later time. Median obstacles adjacent to curves that follow a long tangent require special attention. The clear zone in these areas may need to be adjusted. See Section 1C-2 of this manual.

RE-56 Wire Rope Safety Barrier Design

The process for laying out the RE-56 wire rope safety barrier design involves four steps:

1. Determine the length of need
2. Place the first Type 'LON' (Non-slotted) post
3. Place the remaining Type 'LON' (Non-slotted) posts
4. Place approach and trailing terminals

The distance between the face of the obstacle and the center of the posts should be no less than ten feet (3.0 meters). If the obstacle is within a narrow median that does not accommodate this design or if the obstacle is located close enough to the edge of traveled way that the installation line encroaches on the shoulder, consult the Methods Section for assistance.

Example – Bridge Piers

The facility is a four-lane interstate with 50-foot median. Bridge piers are located in the center of the median. Design year ADT is 25,500 and the design speed is 70 mph. Using Table 2 in Section 8B-1, the runout length (L_R) is 360 feet.

Determine the length of need. First determine the length of need using the graphical method, see Figure 1. The installation line is placed 10 feet from the face of the obstacle. Where the installation line crosses the triangle is the length of need.

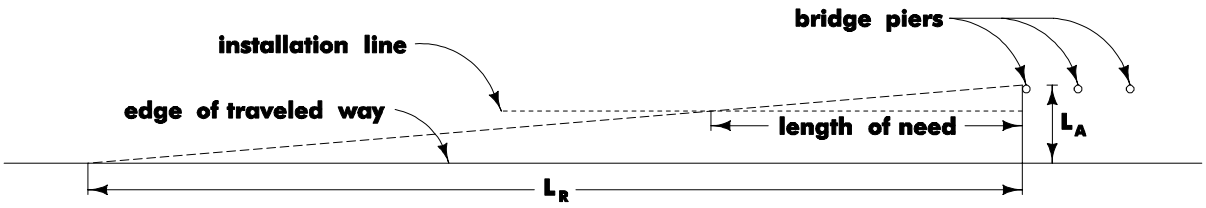

Figure 1: Determining length of need.

Place the first Type 'LON' (Non-slotted) post. Place the first Type 'LON' (Non-slotted) post at the length of need, see Figure 2. This will be the first Type 'LON' (Non-slotted) post shown on RE-80. For protection of median obstacles, only Type 'A', Type 'B', and Type 'LON' (Non-Slotted) posts are used.

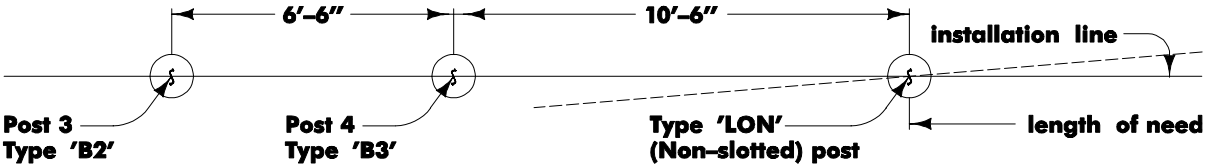

Figure 2: Placing the first Type 'LON' (Non-slotted) post, refer to RE-80(1).

Place remaining Type 'LON' (Non-slotted) posts. To determine the number of Type 'LON' (Non-slotted) posts, add the length of need plus the length of the obstacle (parallel to the roadway), see Figure 3. Once this has been determined, divide by the post spacing (10.5 feet) and round up to the next whole number. For this example, the length of need plus the length of the obstacle is 216.6 feet. Dividing 216.6 feet by 10.5 feet gives 20.6. Rounding up to the next whole number gives 21, so the number of Type 'LON' (Non-slotted) posts at 10'-6" spacing is 21. The remaining Type 'LON' (Non-slotted) posts are laid out as shown in figure 3.

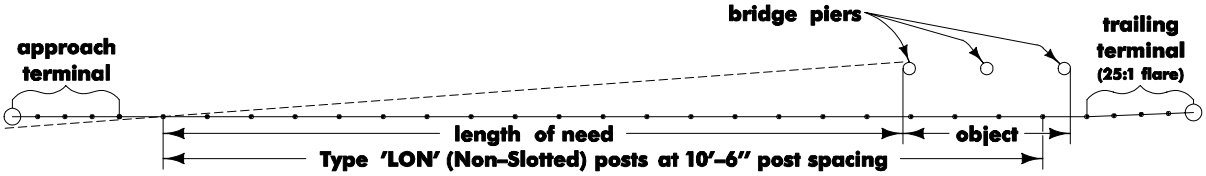

Figure 3: Laying out wire rope safety barrier and placing terminals, refer to RE-80(2).

Place approach and trailing terminals. Now the approach and trailing terminals can be placed as shown in Figure 3. RE-80(1) provides details for terminals. The same process is repeated for the other side of the piers. The final layout is shown in Figure 4.

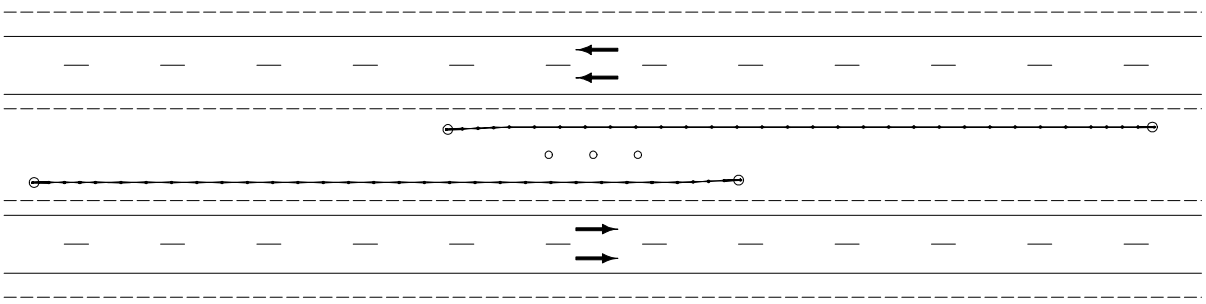

Figure 4: Layout for protection of median bridge piers.

Example 7 in Section 8B-10 demonstrates how this is tabulated.